

CHAPTER 6.0

ANALYSIS OF LONG-TERM EFFECTS

CEQA requires the discussion of the cumulative impacts, growth-inducing impacts, and long-term impacts of a proposed project. As well, global climate change impacts are discussed in Section 6.2. The following sections address these issues as they relate to implementation of the proposed project.

6.1 CUMULATIVE IMPACTS

The CEQA Guidelines define cumulative effects as “two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts.” The Guidelines further state that the individual effects can be the various changes related to a single project or the changes involved in a number of other closely related past, present, and reasonably foreseeable probable future projects (CEQA Guidelines Section 15355). The Guidelines allow for the use of two alternative methods to determine the scope of projects for the cumulative impact analysis:

- List Method – A list of past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency.
- Regional Growth Projections Method – A summary of projections contained in an adopted general plan or related planning document that is designed to evaluate regional or areawide conditions (CEQA Guidelines Section 15130).

For the purpose of this EIR, the issuance of the Notice of Preparation (July 2007) is considered the baseline from which to analyze future known or anticipated cumulative impacts, and the Regional Growth Projections Method has been utilized for the analysis. The cumulative analysis is based on buildout assumptions of the SANDAG 2030 Regional Growth Forecasts on a subregional level that includes the City’s General Plan buildout projections. This method was selected because it would describe a reasonable point in time at which to begin the cumulative impact analysis without being subject to frequent revision as new, incremental projects are identified. It accommodates a greater projection of population and development growth assumed under long-term land use planning than a list of known or anticipated future projects

(limited to short- and intermediate-term development) and, therefore, may analyze cumulative impacts of the proposed project over a longer time span with continued growth and development.

6.1.1 SANDAG 2030 Regional Growth Forecasts

SANDAG estimates regional growth for the San Diego County area for the purposes of planning and public policy development. The most recent growth projections available when the NOP was published for the EIR, is the 2030 forecast prepared by SANDAG, which is an extensive analysis of the regional economic and demographic conditions. SANDAG provides estimates and forecasts of employment, population, and housing for the period ranging from 2010 to 2030. These forecasts serve as a basis for growth forecasts made by SANDAG.

SANDAG projections are available by Countywide, City, Major Statistical Areas, Subregional Areas, and Community Planning Areas. **Table 6.1-1** shows the current estimates and future projections for population, housing, and employment for the City of Carlsbad and the County of San Diego. The population of Carlsbad is expected to increase approximately 62 percent between 2000 and 2030 to approximately 127,046 persons, compared to the entire County's population, which is expected to increase by approximately 42 percent. The City of Carlsbad is expected to experience a higher increase (48 percent) in housing units between 2000 and 2030 compared to the County of San Diego (33 percent). The City of Carlsbad is also expected to experience a greater increase (55 percent) in employment growth than the County (32 percent) from 2000 to 2030.

Table 6.1-1
Projections for the County of San Diego and the City of Carlsbad

	Total Population		Total Housing		Total Employment ¹	
	2000	2030	2000	2030	2000	2030
County of San Diego	2,813,833	3,984,753	1,040,149	1,383,803	1,384,673	1,828,612
City of Carlsbad	78,247	127,046	33,798	49,899	50,780	78,784

¹ Includes military
Source: SANDAG 2008.

6.1.2 Geographic Scope for Cumulative Impact Analysis

The geographic scope of the cumulative impact analysis varies depending upon the environmental issue being analyzed. For the purposes of this EIR, the city limits of Carlsbad define the geographic scope for the analysis of cumulative impacts to land use and planning, public services and utilities, and visual aesthetic/grading. The City's General Plan, the Growth Management Plan, and development policies address land use, public services and utilities, and aesthetic and grading issues. Carlsbad's limits also define geographic scope for cultural resources and hazards issues since the proposed project as mitigated does not require any grading or development that would contribute to cumulative cultural resources or hazards impacts outside of the city limits.

Carlsbad's limits also define the geographic scope for biological resources as the City's Habitat Management Plan provides guidelines for the regulation and management of biological resources within the city limits.

The North County subregional area is used as the geographic scope for the analysis of geology/soils due to the location of existing faults in the region.

The San Diego Air Basin is used as the geographic scope for the analysis of cumulative air quality impacts due to the existence of Regional Air Quality Strategy plans and requirements set forth by the SDAPCD that apply to all cumulative projects within the San Diego Air Basin.

The Carlsbad Hydrologic Unit/San Marcos Creek and Batiquitos Lagoon watersheds define the geographic scope related to hydrology and water quality as cumulative development in these watersheds could impact the drainage and water quality of the watershed and downstream water bodies.

The geographic scope for traffic/circulation is defined in **Figure 5.2-1** in Section 5.2 Transportation/Circulation of this EIR. This study area covers most of Carlsbad east of I-5 and extends into portions of Encinitas and San Marcos as well as portions of unincorporated San Diego County.

The circulation system within and immediately adjacent to the site defines the geographic scope for the analysis of cumulative noise impacts due to the anticipated project contribution of

vehicular traffic-generated noise on existing roadways and onsite construction- and operations-generated noise on surrounding land uses.

6.1.3 Cumulative Impact Analysis

Land Use and Planning

The project consists of the development and operation of a mixed-use development containing commercial, office, multifamily residential, and single-family residential. The project site is surrounded by existing developed urban land uses and the proposed development has been determined to be compatible with these existing surrounding land uses. In addition, the analysis in Section 5.1 of this EIR has determined that no significant project impact would occur to existing land use plans and policies, including the Carlsbad General Plan, the La Costa Master Plan, and specific regulatory and environmental documents adopted by the City. Land uses in Carlsbad will significantly change during buildout of the Carlsbad General Plan and achievement of orderly growth will be dependent upon other future development occurring in a manner that is also consistent with the General Plan, Growth Management Plan, and other applicable development regulations cited in Section 5.1. Based on the project's land use compatibility and consistency with existing land use plans and policies, the project would not contribute to potential cumulative land use impacts that might result from other future development.

Transportation/Circulation

Implementation of the proposed project will introduce new vehicular and alternative transportation trips to and from the project site on the existing roadway network in the vicinity of the project. Under the project plus future development projections, several road segments and intersections would have a significant impact as analyzed in Section 5.2 Transportation/Circulation of this EIR. Some of these could be mitigated to a level less than significant and, therefore, cumulatively considerable impacts could not result where project-level impacts were determined to be mitigated.

However, there are five local road segments, I-5 segments, and two intersections that would experience a significant project-level and/or cumulatively considerable impact without further

mitigation as a result of the project-generated trips plus trips generated through anticipated future growth. These road segments and intersections are:

- Rancho Santa Fe Road segment between Island Drive and Melrose Drive (all scenarios)
- Rancho Santa Fe Road segment between San Marcos Boulevard and Island Drive (all scenarios)
- Rancho Santa Fe Road segment between San Elijo Road and La Costa Avenue (all scenarios)
- Olivenhain Road segment between El Camino Real and Rancho Santa Fe Road (Existing + Project and Year 2010, 2030)
- El Camino Real segment between Aviara Parkway and La Costa Avenue (all scenarios)
- Leucadia Boulevard segment between Quail Gardens Drive and El Camino Real (Year 2030)
- I-5 Freeway segments (all scenarios)
- Intersection of Rancho Santa Fe Road and El Camino del Norte (all scenarios)
- Intersection of Rancho Santa Fe Road and San Marcos Boulevard (Year 2010, 2030)

A cumulative transportation/circulation impact is anticipated to remain significant and unmitigated at these road segments and intersections.

Air Quality

Buildout of the area as forecasted in the SANDAG 2030 Regional Growth Forecasts will result in an increase in air emissions in the area due to mobile source emissions associated with vehicle trip generation, area emissions from the usage of natural gas, landscape maintenance equipment, and consumer products, and stationary sources (i.e., electrical generation), which will result in a cumulative air quality impact. The implementation of subsequent projects will result in increase vehicle miles traveled and natural gas and electric power consumption. These subsequently result in increases in the emissions of criteria air pollutants and ozone precursors, i.e., CO, PM₁₀, PM_{2.5}, ROG, and NO_x. Mobile sources and area sources are the major

contributors to air pollution in Carlsbad as well as the SDAB. Implementation of the proposed project will contribute to increased emissions in the area and will result in a project-level significant air quality impact. Since the San Diego Air Basin is a “nonattainment basin,” any additional air emission is considered to contribute to a cumulatively significant impact; therefore, the proposed development on the project site will contribute to a significant cumulative impact on the air quality in the region. The cumulative air quality impact is anticipated to remain significant and unmitigated.

Noise

Roadway noise levels will generally increase as development occurs through buildout of the SANDAG 2030 Regional Growth Forecasts, including the City’s projected buildout. Cumulative buildout will increase the traffic-generated noise on surrounding roadways and other types of noise typically associated with urban uses will also increase. Implementation of adopted noise regulations, such as the City’s Noise Element and noise standards, will avoid a cumulative noise impact. The proposed project’s contribution to a significant cumulative noise impact would not be significant, as the project-specific noise impact to offsite land uses is not significant. The proposed project’s impact to groundborne vibration from blasting and excessive intermittent noise from blasting and drilling will be limited to project-related impacts from these actions as no other groundborne vibration sources or blasting/drilling operations exist in the immediate project vicinity.

Paleontological Resources

Development within Carlsbad may result in impacts to paleontological resources. Based on the proven paleontological resource value of the Eocene-age sedimentary rocks, the mass excavation of the commercial portion of the project site has the potential to impact paleontological resources. Implementation of the City’s adopted Cultural Resource Guidelines and state regulations will avoid a cumulative impact to paleontological resources. The proposed project’s contribution to a cumulative impact would not be significant, as project-specific impacts will be mitigated to a level less than significant. Therefore, the proposed project will not contribute to a significant cumulative paleontological resources impact.

Biological Resources

The increase in urbanization of open space and native habitat will result in the development of vacant land in the area within the City's HCP/OMSP. The City's HCP/OMSP anticipates future development within the city and addresses biological impacts on a cumulative level. Implementation of the City's HCP/OMSP will avoid a significant cumulative impact to biological resources. The project site is within the Rancheros/Southeast II component of the HCP/OMSP and is consistent with the HCP/OMSP. In addition, project-specific impacts to 17.4 acres of Diegan coastal sage scrub and disturbed coastal sage scrub, 5.6 acres of native grassland, 27.3 acres of nonnative grassland, 0.2 acre of riparian scrub, 0.3 acre of disturbed seasonal ponding areas, California adolphia, southwestern spiny rush thread-leaved brodiaea, Orcutt's brodiaea, San Diego thornmint, Palmer's grappling hook, western dichondra, small-flowered microseris, western spadefoot, Belding's orangethroat whiptail, California horned lark, loggerhead shrike, southern California rufous-crowned sparrow, white-tailed kite, yellow-breasted chat, coastal California gnatcatcher, and impacts to all jurisdictional waters and wetlands can be mitigated to a level less than significant. Since the proposed project is consistent with the City's HCP/OMSP and project-level impacts will be reduced to a less than significant level with the implementation of mitigation measures, the proposed project will not contribute to a significant cumulative biological resources impact.

Hydrology/Water Quality

The geographic scope for hydrology/water quality includes the Carlsbad Hydrologic Unit/San Marcos Creek and Batiquitos Lagoon watersheds. Implementation of the proposed project would substantially increase impervious surfaces and corresponding storm water runoff volume, as well as have impacts related to onsite or offsite erosion or siltation, water quality, and listed impaired water bodies. However, all the project-level impacts can be mitigated to a level less than significant. Development of cumulative projects will be subject to all applicable Regional Water Quality Control Board regulations that address both short-term and long-term water quality. The proposed project will not contribute to a significant cumulative hydrology/water quality impact.

Geology and Soils

The geographic scope for geology and soils includes the project site and the North County subregional area within the framework of the regional geologic setting. Development of cumulative projects will result in an increase in population that would be exposed to hazardous geologic conditions. Geologic and soils conditions are site-specific and cumulative impacts to geological resources would be considered significant if the project would be impacted by geologic hazards and if the impact could combine with offsite geologic hazards. The proposed project's contribution to a cumulative impact associated with geology and soils would not be cumulatively considerable, because the project-specific impact will be mitigated to a level less than significant. Additionally, project geologic impacts are confined to the project site and would not create a geologic impact offsite. Because all site-specific geology and soils impacts will be reduced to a level less than significant with existing requirements and mitigation measures contained in EIR Section 5.8 Geology and Soils, and the geologic conditions in the southern California region will essentially be the same whether or not the proposed project is implemented, the proposed project will not contribute to a cumulatively significant impact related to geology and soils.

Hazards

Development of Carlsbad has the potential to expose additional persons to hazardous materials and hazards. Implementation of city, county, state, and federal regulations and policies adopted to protect the population from hazards will avoid a cumulative hazards impact. In addition, the proposed project will not create a hazard or expose people to hazardous uses and the project-level impact is less than significant. Because the project-level impact associated with dam failure and flooding is mitigated to a level less than significant, the proposed project would not contribute to a significant cumulative hazardous materials and hazards impact.

Visual Aesthetics/Grading

Urban development will result in a change in aesthetics within the region. New development in currently vacant areas will alter the natural terrain and topography. Local planning policies and development standards, including specific policies related to visual resources and grading design standards will reduce aesthetics impacts as a result of development, avoiding a cumulatively significant aesthetics impact. In addition, the proposed project's contribution to a

potential cumulative aesthetics impact would not be significant as the project-specific visual aesthetics/grading impact will be mitigated to less than significant. Therefore, the project will not contribute to a significant cumulative visual aesthetics/grading impact.

Public Services and Utilities

Increases in demand for public services and utilities will occur as the population and development in Carlsbad increases. The provision of adequate public services and facilities is a requirement of the City's Growth Management Plan. Impacts to public services and utilities will be addressed on a project-by-project basis through service agreements or compliance with growth management standards, thereby avoiding a cumulative impact. Project-level public services and utilities impacts and environmental impacts associated with the alteration, expansion, or construction of new facilities, will be avoided. Therefore, the project will not contribute to a significant cumulative public services and utilities impact.

6.2 GLOBAL CLIMATE CHANGE

One of the basic purposes of CEQA is to, "inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities" (CEQA Guidelines Section 15002(a)(1)). Furthermore, the CEQA Statutes "require a finding that a project may have a 'significant effect on the environment' if one or more of the following conditions exists:

- (1) A proposed project has the potential to degrade the quality of the environment, curtail the range of the environment, or to achieve short-term, to the disadvantage of long-term, environmental goals.
- (2) The possible effects of a project are individually limited, but cumulatively considerable. As used in this paragraph, 'cumulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
- (3) The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly." (Public Resources Code Section 21083(b))

This section includes a discussion of existing climate conditions, climate change, and GHG emissions sources in California; a summary of applicable regulations; and a description of the potential impacts of the project related to climate change.

6.2.1 Environmental Setting

Attributing Climate Change – Greenhouse Gases

Certain gases in Earth's atmosphere, classified as GHGs, play a critical role in determining surface temperatures. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth, not as high-frequency solar radiation, but as lower-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Earth has a much lower temperature than the sun; therefore, it emits lower-frequency (longer-wavelength) radiation. Most solar radiation passes through GHGs; however, GHGs have strong absorption properties in wavelength bands along the electromagnetic spectrum, whereas the atmosphere, in its natural composition, does not. This range of absorption spectra (from wavelengths of 8–13 micrometers) is known as the "infrared atmospheric window" region of the electromagnetic spectrum, where infrared radiation is selectively absorbed by GHGs. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO₂), methane (CH₄), ozone, nitrous oxide (N₂O), and fluorinated compounds. Climate change is defined as a change in the climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and that is in addition to natural climate variability observed over comparable time periods. Human-caused emissions of these GHGs exceeding natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of Earth's climate, known as global climate change (UNFCCC 2008). It is extremely unlikely that global climate change of the past 50 years can be explained without the contribution from human activities (IPCC 2007a).

Impacts of Climate Change

According to overwhelming scientific consensus on the subject, climate change is already under way. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (discussed in Section 5.3 Air Quality of this EIR), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Approximately 54 percent of the total annual human-caused CO₂ emissions are sequestered within a year through ocean uptake, uptake by forest regrowth in the Northern Hemisphere, and other terrestrial sinks; the remaining 46 percent of human-caused CO₂ emissions remain stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are borne globally. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say that the quantity is enormous and that no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global or local climate or microclimate.

Global average ambient concentrations of CO₂ have increased dramatically since preindustrial times, from approximately 280 parts per million (ppm) to approximately 353 ppm in 1990 and approximately 380 ppm in 2000. Global average temperature has risen approximately 0.76 degree Celsius (°C) since 1850; if global CO₂ emissions were to be curbed today, it would continue to rise an additional 0.5°C by the end of this century. This phenomenon is caused by the inertia of the climate system and time scale of the main sequestration mechanism in the carbon cycle—the ocean. In other words, global climate is committed to an additional 0.5°C of warming associated with human activities that have already occurred. Because GHG emissions associated with fossil fuel combustion, population growth, technological advances, and current standards of living will continue to occur, a more likely range of scenarios for global average temperature rise would be 1.8 - 4.0°C by the end of the century, depending on the global emissions scenario that ultimately occurs. (For example, the Intergovernmental Panel on Climate Change's B1 scenario—low population growth, clean technologies, and low emissions—is the

best-case scenario; its A2 scenario—high population growth, fossil-fuel dependence, and high emissions—is the worst-case scenario; and its A1B scenario is a moderate scenario.)

Impacts associated with the incremental increase in global temperature have already begun to occur. Such impacts are projected to occur in numerous forms: sea level rise, reduction in the extent of polar and sea ice, changes to ecosystems, changes in precipitation patterns, reduced snowpack, agricultural disruption, increased intensity and frequency of storms and temperature extremes, increased risk of floods and wildfires, increased frequency and severity of drought, effects on human health from vectorborne disease, species extinction, and acidification of the ocean.

It is accepted that some level of climate change impacts will occur as a result of human-caused climate change. However, international treaties on the subject of climate change attempt to avoid “dangerous” climate change—in other words, to manage the risk of foreseeable impacts to a “tolerable” level of climate change that would avoid most catastrophic impacts. For this to occur, CO₂ concentrations should be stabilized at 350–400 ppm, with an associated global average temperature increase of no more than 2°C–2.4°C above preindustrial times. Timing is also a key issue, because of the very long lifetimes of GHGs. To avoid “dangerous” climate change, global CO₂ emissions would be required to peak during the 2000–2015 period (IPCC 2007a, 2007b).

Greenhouse Gas Emissions Sources and Inventory

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (CEC 2006). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CEC 2006). Emissions of CO₂ are byproducts of fossil-fuel combustion. CH₄, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) largely associated with agricultural practices and landfills. CO₂ sinks, or reservoirs, include vegetation and the ocean, which respectively absorb CO₂ through photosynthesis and dissolution, two of the most common processes of CO₂ sequestration.

California is the 12th to 16th largest emitter of CO₂ in the world (CEC 2006). California produced 484 million gross metric tons of CO₂ equivalent (CO₂e) in 2004. CO₂e is a

measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, depends on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, “Calculation References,” of the *General Reporting Protocol* of the California Climate Action Registry (CCAR) (2009), 1 ton of CH₄ has the same contribution to the greenhouse effect as approximately 23 tons of CO₂. Therefore, CH₄ is a much more potent GHG than CO₂. Expressing emissions in CO₂e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

Combustion of fossil fuels in the transportation sector was the single largest source of California’s GHG emissions in 2004, accounting for 41 percent of total GHG emissions in the state (CEC 2006). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (22 percent) and the industrial sector (21 percent) (CEC 2006).

6.2.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

As of this writing, there are no adopted federal plans, policies, regulations or laws mandating reductions in GHG emissions that cause addressing global warming. According to the EPA, “the United States government has established a comprehensive policy to address climate change” that includes slowing the growth of emissions; strengthening science, technology and institutions; and enhancing international cooperation. To implement this policy, “the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science.” The federal government’s goal is to reduce the GHG intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, EPA administers multiple programs that encourage voluntary GHG reductions, including ENERGY STAR, Climate Leaders, and Methane Voluntary Programs (EPA 2007).

With respect to GHGs, the U.S. Supreme Court ruled on April 2, 2007, that CO₂ is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs.

State Plans, Policies, Regulations, and Laws

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Relevant Statutes

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493 (Chapter 200, Statutes of 2002), which amended Section 42823 of the California Health and Safety Code and added Section 43018.5 to the code. AB 1493 required the ARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emissions standards in 2004. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961) and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. For passenger cars and light-duty trucks 3,750 pounds (lbs) or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than the during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 lbs gross vehicle weight (GVW), GHG emissions would be reduced by approximately 24 percent between 2009 and 2016.

In January 2007, the judge hearing the case accepted a request from the California Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court case, *Massachusetts, et al., v. Environmental Protection Agency, et al.*, the primary issue in question was whether the CAA provides authority for EPA to regulate CO₂ emissions. EPA contended that the CAA does not authorize regulation of CO₂ emissions, whereas Massachusetts and 10 other states, including California, sued EPA to begin regulating CO₂. As mentioned above, the U.S. Supreme Court ruled on April 2, 2007, that GHGs are "air pollutants" as defined under the CAA and that EPA is granted authority to regulate CO₂ (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

On December 12, 2007, the U.S. District Court rejected the automakers' claim and ruled if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard) that these regulations would not be consistent with federal law. This authorization to implement more stringent standards in California was requested in the form of a CAA Section 209(b) waiver in 2005. Since that time, EPA has failed to act in granting California authorization to implement the standards. Governor Arnold Schwarzenegger and Attorney General Edmund G. Brown Jr. filed suit against EPA for the delay. EPA denied California's request for the waiver to implement AB 1493 in late December 2007. The State of California has filed suit against EPA for its decision to deny the CAA waiver. The recent change in administration has directed EPA to reexamine its position for denial of California's CAA waiver and for its past opposition to GHG emissions regulation. It appears likely that California will receive the waiver, notwithstanding the previous denial by EPA, in early 2009.

Assembly Bill 32, the California Global Warming Solutions Act of 2006 (Health and Safety Code § 38500 et seq.)

In September 2006, Governor Schwarzenegger signed AB 32 (Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006, which enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires reduction of statewide GHG emissions to 1990 levels by 2020 (an approximately 25 percent reduction in existing statewide GHG emissions). This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement

regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control GHG emissions from vehicles under the authorization of AB 32.

AB 32 requires ARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Senate Bill 107 (2006)

SB 107 (Chapter 464, Statutes of 2006) requires investor-owned utilities in the state such as San Diego Gas and Electric Company to increase their total procurement of eligible renewable energy resources by at least an additional 1 percent of retail sales per year so that 20 percent of retail electricity sales come from renewable-energy sources by December 31, 2010. Previously, state law required achievement of this 20 percent requirement by 2017.

Senate Bill 1368 (Public Utilities Code §§ 8340-41)

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for base-load generation from investor-owned utilities by February 1, 2007. Similarly, the California Energy Commission (CEC) was tasked with establishing a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a base-load, combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, be generated from plants that meet the standards set by CPUC and CEC. In January 2007, CPUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for base-load generation entered into by investor-owned utilities have emissions no greater than a combined-cycle gas turbine plant (i.e., 1,100 lb of CO₂ per megawatt-hour). A “new long-term

commitment” refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing base-load power plants. In May 2007, CEC approved regulations that prohibit the state’s publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by CPUC of 1,100 lb of CO₂ per megawatt-hour.

Senate Bill 1505 (2006)

SB 1505 (Chapter 877, Statutes of 2006) establishes environmental performance standards for the production and use of hydrogen fuel for transportation purposes in the state. In general, SB 1505 specifically requires the following:

- Hydrogen-fueled vehicles must reduce GHG emissions by at least 30 percent compared to emissions from new gasoline vehicles.
- At least one-third of the hydrogen produced or dispensed for transportation purposes in the state must be made from renewable sources of electricity.
- Well-to-tank emissions of smog-forming pollutants from hydrogen fuel dispensed in the state must be reduced by at least 50 percent when compared to gasoline.
- Emissions of toxic contaminants must be reduced to the maximum extent feasible compared to gasoline on a site-specific basis.

Senate Bill 97 (2007)

SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor’s Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Resources Agency by July 1, 2009, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA. The California Resources Agency is required to certify and adopt those guidelines by January 1, 2010. This bill also removes, both retroactively and prospectively, as legitimate causes of action in litigation any claim of inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 (Proposition 1B) or the Disaster

Preparedness and Flood Protection Bond Act of 2006 (Proposition 1E). This provision will be repealed by operation of law on January 1, 2010; at that time such projects, if any remain unapproved, will no longer enjoy protection against litigation claims based on failure to adequately address issues related to climate change. This bill would protect only a handful of public agencies from CEQA challenges on certain types of projects for a few years' time.

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RHNA) cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or County land use policies (including General Plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Senate Bill 1078

SB 1078 addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. SB 107 changed the target date of this bill's implementation to 2010. This Senate bill would affect statewide GHG emissions associated with electricity generation.

Executive Orders

Executive Order S-20-04 (2004)—The California Green Building Initiative

Governor Schwarzenegger signed Executive Order S-20-04, the California Green Building Initiative, on December 14, 2004, establishing the state's priority for energy and resource-efficient high-performance buildings. The executive order sets a goal of reducing energy use in state-owned and private commercial buildings by 20 percent in 2015, using nonresidential Title 20 and Title 24 standards adopted in 2003 as the baseline. The California Green Building Initiative also encourages retrofitting, construction, and operation of private commercial buildings in compliance with the state's Green Building Action Plan.

Executive Order S-3-05 (2005)

Executive Order S-3-05, which was signed by Governor Schwarzenegger on June 1, 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established targets for total GHG emissions. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The executive order directed the secretary of the California Environmental Protection Agency to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and legislature describing progress made toward reaching the emission targets; impacts of global warming on California's resources; and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the Secretary of the California Environmental Protection Agency created the California Climate Action Team, made up of members of various state agencies and commissions. The California Climate Action Team released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses and actions by local governments and communities, as well as through state incentive and regulatory programs.

California Solar Initiative

As part of the California Solar Initiative, the state has set a goal to create 3,000 megawatts of new solar-produced electricity by 2017 through the provision of approximately \$3.3 billion in incentives to existing residential customers and all nonresidential customers by CPUC and to new residential customers by CEC.

California Code of Regulations Title 24

Although not originally intended to reduce GHG emissions, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions.

Governor's Office of Planning and Research Technical Advisory

On June 19, 2008, OPR issued a Technical Advisory on addressing climate change impacts of a proposed project under CEQA (OPR Climate Change Advisory). The OPR Climate Change Advisory recommends that lead agencies quantify, determine the significance of, and (as needed) mitigate the cumulative climate change impacts of a proposed project. The OPR Climate Change Advisory identifies that each lead agency is required under CEQA to exercise its own discretion in choosing how to determine significance, in the absence of adopted thresholds or significance guidelines from the state, ARB, or the applicable local air district.

Governor's Office of Planning and Research Preliminary Draft CEQA Guideline Amendments for GHG Emissions

OPR has recently issued *Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions* pursuant to SB 97, which the Resources Agency has not approved. They are designed to be consistent with the existing CEQA framework for environmental analysis, including but not limited to the determination of baseline conditions, determination of significance, and evaluation

of mitigation measures. OPR did not identify a specific threshold of significance for greenhouse gas emissions, nor has the OPR prescribed assessment methodologies or specific mitigation measures. The preliminary draft amendments encourage lead agencies to consider many factors in making their own determinations based on substantial evidence.

California Air Resources Board Proposed Scoping Plan

In September 2008, ARB published its *Climate Change Proposed Scoping Plan* (*Proposed Scoping Plan*), which is the plan to achieve GHG reductions in California required by AB 32 (ARB 2008g). The *Proposed Scoping Plan* contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO₂e, or approximately 30 percent, from the state's projected 2020 emission level of 596 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 42 MMT CO₂e, or almost 10 percent, from 2002-2004 average emissions). The *Proposed Scoping Plan* also includes a breakdown of the amount of GHG reductions ARB recommends for each emissions sector of the state's GHG inventory. The largest GHG reductions are recommended from improved vehicle emission standards (estimated reductions of 31.7 MMT CO₂e), a low-carbon fuel standard (15 MMT CO₂e), energy efficiency measures in buildings and appliances (26.3 MMT CO₂e), and a renewable portfolio standard for electricity production (21.3 MMT CO₂e). ARB also recommends that reductions be achieved through local government actions and regional GHG targets; however, the exact amount is still to be determined. The *Proposed Scoping Plan* acknowledges that land use change shall play an important role that affects various emission sectors including transportation, energy, water and wastewater, solid waste and recycling. The ultimate assignments to local governments to achieve GHG reductions will become known as ARB finalizes its scoping plan. Also noteworthy is the fact that the *Proposed Scoping Plan* does not include any direct discussion about GHG emissions generated by construction activity. The *Proposed Scoping Plan* was approved by ARB on December 11, 2008.

Local Plans and Programs

The City does not have any adopted plans or programs specifically designed to address the emission of GHGs that contribute to global climate change.

6.2.3 Cumulative Impact Analysis

Global climate change is caused by the addition of massive quantities of GHGs to the atmosphere due primarily to human activities in the last 150 years from all over the world. For example, about 26 billion metric tons of CO₂ were added to the Earth's atmosphere in 2005 alone. If viewed apart from the GHG emissions produced by activities elsewhere in the world, the mass of GHG emissions generated by an individual development project such as the proposed project would be so minute that the concentration of GHGs in the atmosphere would essentially remain the same. Analyzing project-level climate change impacts is considered speculative under CEQA Guidelines Section 15145 since there is no universally accepted threshold of significance or method of analysis. However, the increasing concentration of GHGs in the atmosphere is caused by the aggregate GHG emissions from a variety of human activities throughout the world, including development projects. Therefore, it is appropriate to evaluate a project's contribution to global climate change in this cumulative, worldwide context.

Methodology

There is no available adopted or widely accepted methodology (at least, not adopted by any air district or state agency) for evaluating GHG emissions from new development. In the case of the proposed project, CO₂ emissions associated with construction and operations were modeled using URBEMIS 2007, Version 9.2.4. CO₂ emissions were used as a proxy for all GHG emissions associated with the proposed project. Indirect emissions associated with energy consumption were estimated using methodology recommended in CCAR's current General Reporting Protocol Version 3.1.

CO₂ emissions associated with VMT are the best indicator of GHGs associated with a land development project. However, it is important to note that other GHGs have a higher GWP than CO₂. For example, 1 lb of CH₄ associated with off-site waste disposal or wastewater treatment processes consistent with the proposed project has an equivalent GWP of 23 lb of CO₂ (CCAR 2009). In other words, as a GHG, CH₄ is 23 times as efficient as CO₂. Nonetheless, emissions of other GHGs would be low relative to CO₂ emissions. It is important to note that CO₂ emissions consistent with buildout of the proposed project may not necessarily be considered "new" emissions, given that the project itself does not create "new" emitters (people) of GHGs. In other words, the proposed project does not create people, but facilitates their movement from one location to another.

Thresholds of Significance

No air district in California, including SDAPCD, has adopted a significance threshold for GHG emissions generated by a proposed project, or a methodology for analyzing impacts related to GHG emissions or global climate change. By adoption of AB 32 and Public Resources Code Sections 21083.05 and 21097, however, the State of California has established GHG reduction targets and has determined that GHG emissions as they relate to global climate change are a source of adverse environmental impacts in California that should be addressed under CEQA. Although AB 32 did not amend CEQA, the legislation does include language identifying the various environmental problems in California caused by global warming (Health and Safety Code, Section 38501(a).) SB 97, in contrast, did amend CEQA to require OPR to prepare CEQA Guidelines revisions addressing the mitigation of GHGs or their consequences. The proper context for addressing the issue in an EIR is the discussion of cumulative impacts, since while the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet GHG emission targets of AB 32, California would need to generate in the future less GHG emissions than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels or conflict with the goals of AB 32.

AB 32 demonstrates California's commitment to reducing the rate of GHG emissions and the state's associated contribution to climate change, without intent to limit population or economic growth within the state. Thus, to achieve the goals of AB 32, which are tied to GHG emission rates of specific benchmark years (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population (per person) than it has now. Further, in order to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than was achieved in 1990. The goal to achieve 1990 quantities of GHG emissions by 2020 means that this goal will need to be accomplished with 30 years of continued population and economic growth beyond 1990 in place. Thus, future projects that would not encourage reductions in GHG emissions (or continue at "business as usual" emission rates) would conflict with the policy decisions contained in the spirit of the Climate Solutions Act, thus impeding California's ability to comply with the mandate. In addition, if a project would be

affected by the reasonably foreseeable effects of climate change, the project should be designed to adapt to altered future conditions.

While the text of AB 32 focuses on major stationary and area sources of GHG emissions, the primary objective is to reduce California's contribution to global warming by reducing California's total annual production of GHG emissions. The impact that GHG emissions have on global climate change is not dependent on whether they were generated by stationary, mobile, or area sources, or whether they were generated in one region or another. Thus, helping to meet the state's requirements for GHG emissions reductions is the best metric for determining whether the proposed project would contribute to global warming. In the case of the proposed project, if the project does not substantially reduce, compared to "business as usual" (i.e., emissions at today's rates) its potential GHG emissions to a rate that provides for the efficiency to attain 1990 levels by the year 2020, then for purposes of this project the associated increase in the amount of mass emission would be considered substantial, and the impact of the project would be cumulatively considerable (significant). Based on ARB's *Proposed Scoping Plan*, the project would need to produce 30 percent less GHG emissions than under "business as usual" circumstances to attain the efficiency targets that would help the state attain AB 32 goals.

6.2.4 Impact Analysis

Short-term construction and long-term operation of the proposed project would generate emissions of GHGs. Construction emissions would be associated with vehicle engine exhaust from construction equipment, vendor trips, and employee commute trips. Operational emissions would be associated with area, mobile, and stationary sources. Area-source emissions would be associated with activities such as natural gas use, maintenance of landscaping and grounds, and other sources. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with visitors, employees, and deliveries to the project site. In addition, increases in stationary-source emissions could occur at off-site utility providers associated with electricity generation and water distribution that would supply the proposed project.

GHG emissions generated by the proposed project would predominantly consist of CO₂. In comparison to criteria air pollutants, such as ozone and PM₁₀, CO₂ emissions persist in the atmosphere for a substantially longer period of time. While emissions of other GHGs, such as CH₄, are important with respect to global climate change, emission levels of other GHGs are

less dependent on the land use and circulation patterns associated with the proposed land use development project than are levels of CO₂.

Buildout of the proposed project would add approximately 25,516 vehicle trips per day to the project area (Urban Systems Associates 2008). If the total trips, as well as area-source and off-site stationary-source GHG emissions are considered, operation of the project would generate total GHG emissions of approximately 41,781 metric tons CO₂e annually during the lifetime of the project. Construction of the proposed project would generate finite quantities of approximately 605 and 839 metric tons of CO₂ in 2010, and 2011, respectively over the duration of construction activities (refer to **Table 6.2-1**). Construction would contribute GHG emissions to a much lesser extent than operation of the proposed project for which emissions occur annually over the lifetime of the project.

6.2.5 Project Design Features that Reduce Greenhouse Gas Emissions

In 2006 the California Climate Action Team (CAT) prepared a recommended list of strategies for the state to pursue to reduce climate change emissions in the state, including strategies to promote smart land use: the integration of transportation and land use decisions. These strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. The proposed project is consistent with the CAT smart land use strategies in the following respects:

- The proposed project includes a mixture of housing types including affordable apartments and high-density units as well as nonresidential uses such as a grocery, retail shops, and other commercial uses adjacent to one another.
- The project proposes a commercial shopping center intended to serve the daily commercial needs of existing nearby residential areas.
- Pedestrian trails would interconnect the residential and nonresidential components of the project and link the proposed project site to an existing trail network.
- The project would make improvements to an existing bus stop on Rancho Santa Fe Road, including a turnout lane and bus shelter.

Table 6.2-1
Summary of Modeled Project-Generated, Construction- and Operation-Related
Emissions of Greenhouse Gases (Carbon Dioxide Equivalent)

Source	Estimated Emissions (CO ₂ e) ¹ (Metric Tons)
Direct Construction Emissions	
2010	605
2011	839
Operational Emissions (2011)	
Area source	1,119 TPY
Mobile source	37,768 TPY
Energy consumption onsite ²	2,569 TPY
Water consumption (energy for conveyance, treatment, distribution, and wastewater treatment) ³	325 TPY
Total GHG Emissions	41,781 TPY

Notes:

CO₂e = carbon dioxide equivalent; TPY = metric tons per year

¹ Emissions were modeled using the URBEMIS 2007 (Version 9.2.4) computer model, based on trip generation rates obtained from Section 5.2 "Transportation and Circulation" of this EIR; proposed land uses identified in Chapter 3.0, "Project Description,"; and default model assumptions where detailed information was not available. URBEMIS accounts for emissions from vehicles and natural gas use. URBEMIS output is in units of tons CO₂/year, whereas a standard unit for reporting GHG emissions is in metric tons CO₂e/year. URBEMIS does not include emission factors for CH₄ and N₂O. Tons were converted to metric tons using the factor of 0.907 metric tons per ton.

² Project indirect operational emissions for electricity generation were calculated using GHG emission factors from the California Climate Action Registry (CCAR) General Reporting Protocol, Version 3.1 January 2009, Appendix C.

⁴ Water consumption data was obtained from Section 3.4 "Public Services" and corresponding electricity consumption data was obtained from the CEC report on Energy – Water Relationship (CEC 2005). CCAR emission factors were used to calculate GHG emissions due to water consumption.

Notes: The values presented in this table do not include the full life-cycle of GHG emissions that may occur over the production/transport of materials used during construction of the project or solid waste disposal over the life of the project, end-of-life of the materials and processes that would contribute to GHG emissions that occur as an indirect result of the project, etc. Doing so would require analysis beyond the current capabilities in impact assessment, and would lead to a false and misleading level of precision in reporting of project-related GHG emissions. Further, indirect emissions associated with in-state energy production, solid waste disposal, and wastewater treatment would be regulated under AB 32 at the source or facility that would handle these processes. The emissions associated with offsite facilities in California would be closely controlled, reported, capped, and traded under AB 32 and ARB programs. Therefore, this category of emissions would be consistent with AB 32 requirements.

Refer to Appendix C for detailed assumptions and modeling output files.

These project design features would promote reduced GHG emissions by creating the opportunity for residents to drive shorter distances, bike, or walk to commercial uses; providing an enhanced transit stop to serve the proposed commercial uses and high-density residential uses; and connecting the project site to the existing trail network. However, the efficacy of these design features is uncertain and it is unlikely that they would lead to a 30 percent reduction in GHG emissions from "business as usual" conditions. Therefore, the incremental GHG emissions associated with the proposed project would cause a cumulatively considerable incremental

contribution to the significant cumulative (worldwide) impacts of climate change when viewed in connection with worldwide GHG emissions.

To establish additional context in which to consider the order of magnitude of project-generated GHG emissions, it may be noted that facilities (i.e., stationary sources of GHG emissions) that generate greater than 25,000 metric tons CO₂/year are mandated to report GHG emissions to the ARB pursuant to AB 32. Additionally, the ARB has proposed a threshold of 7,000 metric tons CO₂e/year for operational emissions (excluding transportation) for industrial projects in its preliminary draft proposal *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. The South Coast Air Quality Management District (SCAQMD) has identified a draft screening level of 3000 metric tons of CO₂e/year for determining significance for residential and commercial projects. In this context, which is presented for informational purposes only, the project's annual operational emissions would appear substantial. However, these requirements apply to stationary combustion sources of GHG emissions, and should not be treated as a numeric threshold applicable to development projects.

Mitigation Measures

Implementation of Air Quality Mitigation Measure AQ-1, which would reduce operational emissions of criteria air pollutants and precursors, would also act to reduce GHG emissions associated with project operation. Mitigation measure AQ-1 is relevant to GHG emissions because both criteria air pollutant and GHG emissions are frequently associated with combustion byproducts. In addition, the applicant shall implement the following measures to reduce direct and indirect GHG emissions associated with the proposed project unless it can be demonstrated to the City of Carlsbad that the measures would not be feasible. Certain measures could already be considered components of the project, but are provided here for purposes of completeness.

A. Energy Efficiency

1. Install efficient lighting and lighting control systems. Site and design buildings to take advantage of daylight.

2. Use trees, landscaping and sun screens on the west and south exterior building walls to reduce energy use.
3. Install light colored “cool” roofs, cool pavements where appropriate, and strategically placed shade trees.
4. Provide information on energy management services for large energy users.
5. Install energy efficient heating and cooling systems, appliances and equipment, and control systems.
6. Limit the hours of operation of outdoor lighting except where infeasible for security reasons.
7. Use solar heating, automatic covers, and efficient pumps and motors for pools and spas at the residential development.
8. Provide education on energy efficiency.

B. Renewable Energy

1. Educate consumers about existing incentives for renewable energy.
2. Install solar panels on carports.

C. Water Conservation and Efficiency

1. Create water efficient landscapes with native, drought-resistant species.
2. Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
3. Use reclaimed water for landscape irrigation. Install the infrastructure to deliver and use reclaimed water.
4. Design buildings to be water-efficient. Install water-efficient fixtures and appliances.
5. Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff.
6. Restrict the use of water for cleaning outdoor surfaces and vehicles.
7. Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment.

8. Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include many of the specific items listed above, plus other innovative measures that are appropriate to the proposed project.
9. Provide education about water conservation and available programs and incentives.

D. Solid Waste Measures

1. Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
2. Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.
3. Provide education and publicity about reducing waste and available recycling services.

E. Transportation and Motor Vehicles

1. Limit idling time for commercial vehicles, including delivery and construction vehicles through the following measures – signage and provision of power outlets for every two dock doors. Install signs prohibiting diesel trucks from idling for more than five minutes and requiring them to connect to the power outlet to run any auxiliary equipment.
2. Use electric or natural gas equipment at the loading docks.
3. Promote ride sharing programs with future tenants e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides.
4. Create car sharing programs. Accommodations for such programs include providing parking spaces for the car share vehicles at convenient locations accessible by public transportation.
5. Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities).
6. Incorporate bicycle lanes and routes into residential street systems.
7. Incorporate bicycle-friendly intersections into street design.

8. For commercial development, provide adequate bicycle parking to promote cyclist safety, security, and convenience.
9. Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.

Measures that are not applicable or not feasible for the proposed project include the following:

- Use on-site generated biogas, including methane, in appropriate applications.
- Recover by-product methane to generate electricity.

The project does not include any land uses that will be bulk methane generators; therefore this measure does not apply to the project.

- Institute a telecommute and/or flexible work hours program. Provide information, training, and incentives to encourage participation. Provide incentives for equipment purchases to allow high-quality teleconferences.

It is currently infeasible for the applicant and the City to institute a telecommute program since the identity of the future tenants is not known at this time.

Implementation of project design features outlined in Section 6.2.5 and the mitigation measures mentioned above would reduce the proposed project's GHG emissions; however, the current state of the science precludes an exact quantification of the additional percentage reduction that would occur from implementation of these additional mitigation measures. Moreover, vehicular emissions constitute approximately 91 percent of the project's GHG emissions. The combination of transportation-related mitigation measures that will be implemented for the project are anticipated to reduce mobile-source related GHG emissions in the range of 5-10 percent (CAPCOA 2008). No other feasible mitigation measures exist to reduce the impact to a level of less than significant. Therefore, this impact would remain significant and unavoidable.

6.3 GROWTH-INDUCING IMPACTS

This section of the EIR considers the ways implementation of the proposed project could directly or indirectly encourage economic or population growth in the region. CEQA refers to growth

inducement as ways in which the proposed project would foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment (CEQA Section 15126.2 (d)).

The project consists of the development and operation of a mixed-use development containing commercial, office, and multifamily and single-family residential. The level of development and demand for utilities and infrastructure that would result from approval of the proposed project does not exceed buildout assumptions of the Zone 11 LFMP. The LFMP process includes restrictions on the timing and phasing of development in relation to the provision of community services and infrastructure. The City's Growth Management Plan Policies, which are enforced in the LFMPs, would continue to monitor growth in the area to maintain adequate levels of service for the people living in Carlsbad. With the incorporation of the LFMP process and the City's Growth Management Plan policies, development cannot proceed until adequate infrastructure is financially guaranteed to meet demand.

The project site is located adjacent to an existing circulation network. Although the project site is vacant, major extensions of infrastructure (i.e., sewer trunk line) will not be required for implementation as proposed development will be located adjacent to existing utilities and infrastructure within Rancho Santa Fe Road and La Costa Avenue. Areas immediately adjacent to the site are developed. This area is part of the Villages of La Costa Master Plan and has been developed. The extension of infrastructure from these roadways will not open any unplanned areas for development. Growth inducement as a result of infrastructure extensions is not anticipated.

The proposed project will be developed with 14 dwelling units less than permitted for the site by the Growth Management Control Point and, therefore, has been determined to be consistent with the City's Growth Management Chapter of the General Plan. In addition, the density of the project is consistent with the City of Carlsbad General Plan, La Costa Master Plan, and Zone 11 LFMP. As such, it will not result in a significant population increase beyond what is projected in the General Plan. The creation of jobs through the proposed commercial land use is not at a level that would attract individuals living outside the region to relocate to Carlsbad or nearby areas. Most likely, the jobs and housing created by the proposed project are anticipated to serve the existing population within the City limits.

The project would provide temporary construction jobs associated with the construction of various industrial, commercial, residential, and public services uses. The short-term nature of the construction jobs is not anticipated to lead to significant long-term population growth in the region.

6.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Development of the proposed project will result in the consumption of nonrenewable energy resources, which will have a significant irreversible effect on such resources. The proposed project will also result in the development of an urban use on a site that is currently vacant and partially utilized for agricultural production. Once developed, reverting to a less urban use or open space is highly unlikely. Development of the project site will constrain future land use options.

Several irreversible commitments of limited resources would result from implementation of the proposed project. The resources include but are not limited to the following: lumber and other related forest products; sand, gravel, and concrete; asphalt; petrochemical construction materials; steel, copper, lead and other metals; and water consumption.

6.5 UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS

Analysis of environmental impacts caused by the proposed project has been performed and is contained in Section 5.0. Unavoidable significant environmental impacts were identified for the following impact areas and were analyzed as part of this EIR:

Remain Significant After Mitigation

- Transportation/Circulation (project-level and cumulative)
- Air Quality (project-level and cumulative)
- Climate Change (cumulative)
- Noise (project-level)

Mitigated To a Level Less Than Significant

- Noise (cumulative)

- Paleontological Resources (project-level and cumulative)
- Biological Resources (project-level and cumulative)
- Hydrology/Water Quality (project-level and cumulative)
- Geology and Soils (project-level and cumulative)
- Hazards (project-level)

6.6 EFFECTS NOT FOUND TO BE SIGNIFICANT

Analysis of environmental impacts caused by the proposed project has been performed and is contained in Section 5.0 of the EIR. The following impact areas were analyzed as part of the Initial Study and this EIR and were found to be not significant:

Initial Study

- Agricultural Resources (project-level and cumulative)
- Cultural Resources (project-level and cumulative)
- Mineral Resources (project-level and cumulative)
- Population and Housing (project-level and cumulative)
- Recreation (project-level and cumulative)

Environmental Impact Report

- Land Use (project-level and cumulative)
- Hazards (cumulative)
- Public Services and Utilities (project-level and cumulative)
- Visual Aesthetics/Grading (project-level and cumulative)

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